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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/089,799	04/02/2002	Seiji Matsunaga		1060

7590 11/26/2004
Flynn Thiel Boutell & Tanis
2026 Rambling Road
Kalamazoo, MI 49008-1699

EXAMINER

NATNAEL, PAULOS M

ART UNIT	PAPER NUMBER
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2614

DATE MAILED: 11/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No. /

10/089,799

Applicant(s)

MATSUNAGA, SEIJI

Examiner

Paulos M. Natnael

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2 and 6-8 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 2 is/are rejected.
- 7) ☒ Claim(s) 6-8 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2/2/02
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 2, the claimed "for weighting the luminance most differing from the luminance of the objective pixel and the luminance of the objective pixel respectively", is not clear whether it is referring to one or two different "objective" pixels, rendering the claim indefinite.

Allowable Subject Matter

3. Claims 6-8 are allowed.
4. Claim 2 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.
5. The following is a statement of reasons for the indication of allowable subject matter: the prior art fails to disclose, a contour emphasizing circuit comprising the synchronizing means composed of the 1-dot delay circuit and the 1-dont delay circuit, for synchronizing the timings of the objective pixel and the adjacent pixels in horizontal, vertical, rightward-rising and leftward-rising directions represented by the digital video signals; the contour direction detecting

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stage for detecting the direction of the pixel whose absolute value of the difference in the luminance is largest among the differences in luminance; of the horizontal, vertical, rightward-rising and leftward-rising pixels which have been synchronized by the synchronizing, means, the contour detecting stage 18 composed of the inclined pixel luminance optimizing circuit 25 designed, so that the weighted contour emphasizing values of the luminances of the pixels in the directions detected in the contour direction detecting stage 24 and the luminance of said objective pixel can be determined, so that new objective pixels are picked out consecutively as the pixel next to the present objective pixel, and so that when the signs of the two consecutive contour emphasizing values are the same, the contour emphasizing values preceding and following these two consecutive contour emphasizing values are adopted as they are, whereas when the signs of the two consecutive contour emphasizing values differ, the contour emphasizing values preceding, and following these two consecutive contour emphasizing values are set to 0, and the adding circuit 22 for adding the contour emphasizing values, which have undergone the inclined pixel optimizing processing in the contour detecting stage 18, to the corresponding objective pixels respectively, as in claim 6;

Wherein the contour detecting stage 18 is composed of the contour detecting filters 19a and 19c for weighting the luminances of the pixels in the directions detected in the contour direction detecting stage 24, the contour detecting filter 19b for weighting the luminance of said objective pixel B2, and the inclined contour luminance optimizing circuit 25 designed so that when the signs

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of two consecutive contour emphasizing values are the same, the contour emphasizing values preceding and following, the two consecutive contour emphasizing values are adopted as they are, whereas when the signs of the, two consecutive contour emphasizing values differ, the contour emphasizing values preceding and following said two consecutive contour emphasizing values are set to 0, as in claim 7.

wherein the synchronizing means is composed of the 1-dot delay circuit 11 and the 1-line delay circuit 12 for synchronizing the timings of all the 17 pixels, namely, the objective pixel C3 and the pairs of adjacent horizontal pixels C1 and C5, C2 and C4, the pairs of adjacent vertical pixels A3 and E3, B3 and D3, the pairs of adjacent rightward-rising pixels E1 and A5, D2 and B4, and the pairs of adjacent leftward-rising pixels A1 and E5, B2 and D4; the contour direction detecting stage 29 is composed of the subtracting circuit 13 for detecting the difference in the luminance between each of the pairs of the horizontal pixels C1 and C5, C2 and C4, each of the pairs of the vertical pixels A3 and E3, B3 and D3, each of the pairs of the rightward-rising pixels E1 and A5, D2 and B4, each of the pairs of the leftward-rising pixels A1 and E5, B2 and D4, the absolute value calculation circuit 14 for determining the absolute values of the differences in the luminance, the maximum value detecting circuit 15 for detecting the direction of the pixel whose absolute value is largest of all, and the first selecting circuit 16 and the second selecting circuit 17 for selecting, for output, one of the directions of the horizontal pixels C1 and C5, C2 and C4, the vertical pixels A3 and E3, B3 and D3, the rightward-rising pixels E1 and A5, D2 and B4, and leftward-rising

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pixels A1 and E5, B2 and D4 in response to the signal detected in the maximum value detecting circuit 15; the contour detecting stage 18 is composed of the contour detecting filters 19a, 19b, 19d and 19e for respectively weighting the luminances of the pixels in the directions detected by said contour direction detecting stage 24, the contour detecting filter 19c for weighting the luminance of said objective pixel C3, and the adding circuit 20 for adding these values; the adding circuit 22 is provided for adding the contour emphasizing value weighted by said contour detecting stage 18 to said objective pixel C3, as in claim 8.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


Miyata et al., U.S. Pat. No. 5,543,859 discloses a horizontal contour emphasizing signal processor.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paulos M. Natnael whose telephone number is (703) 305-0019. The examiner can normally be reached on 9:00am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Miller can be reached on (703) 305-4795. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



PAULOS M. NATNAEL
PATENT EXAMINER

PMN
November 22, 2004